

10

FIG. 1

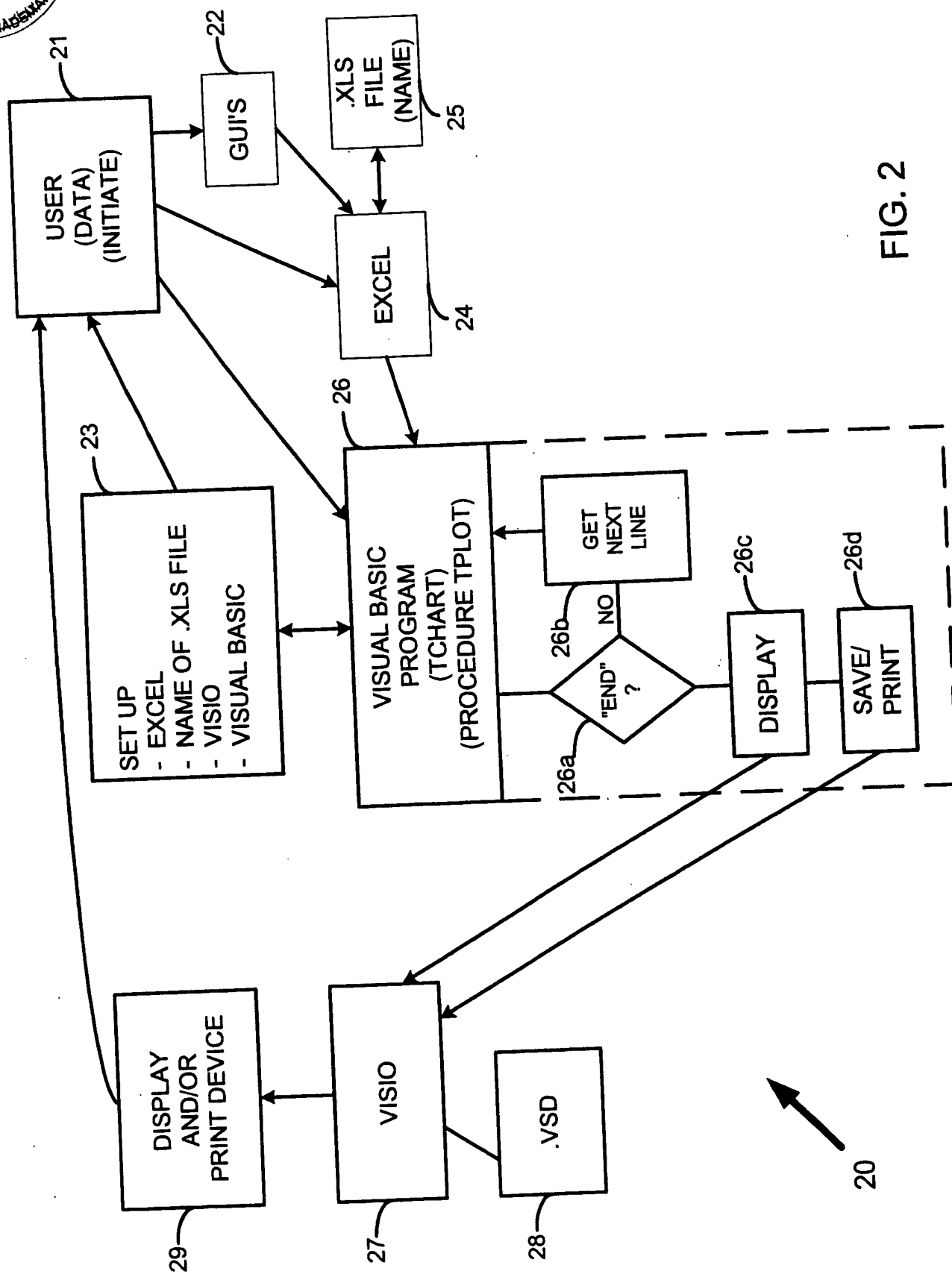
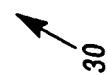


FIG. 2



### Figure 3

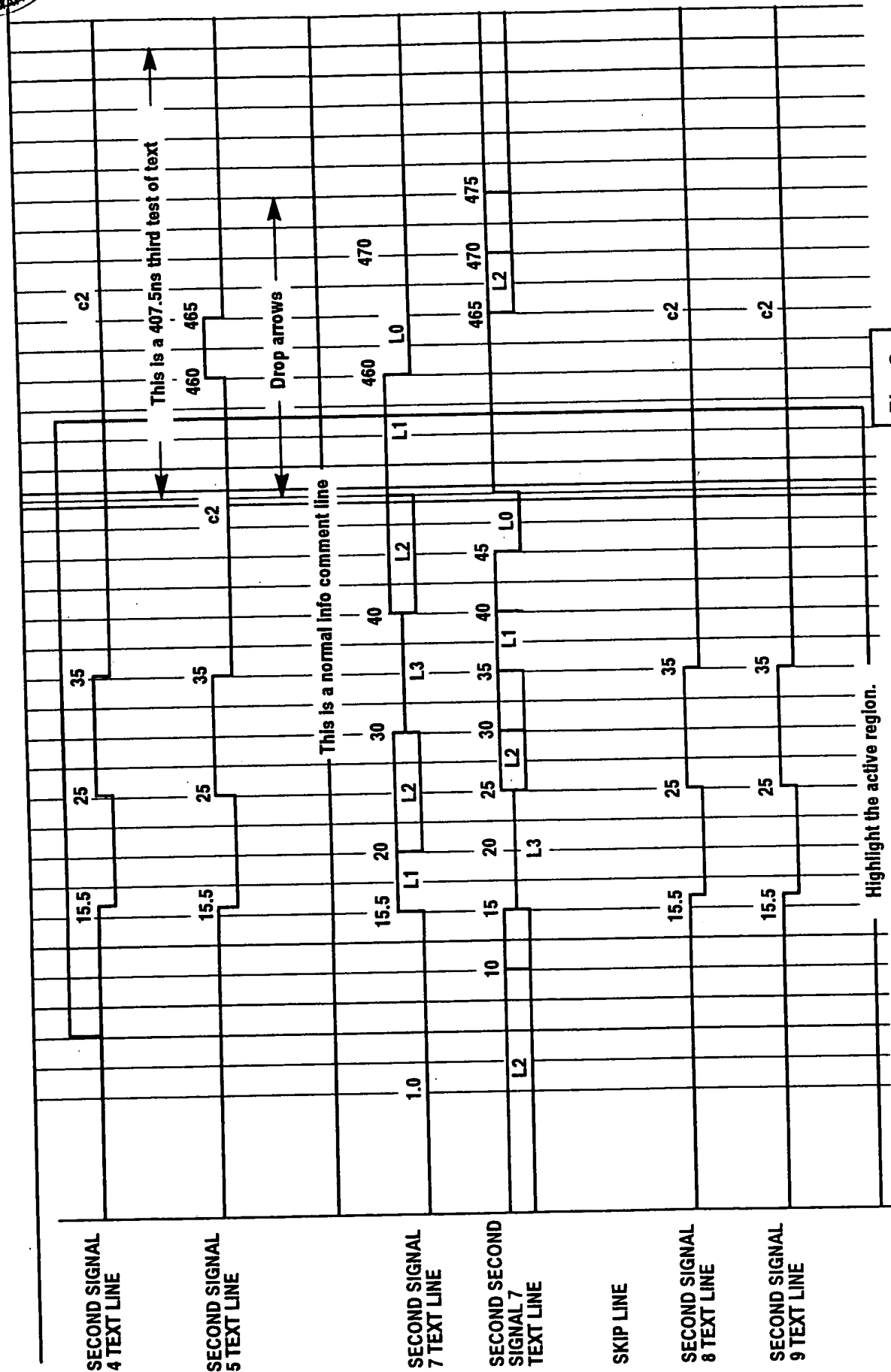


Fig. 3a  
Fig. 3b

Fig. 3b

Figure 3

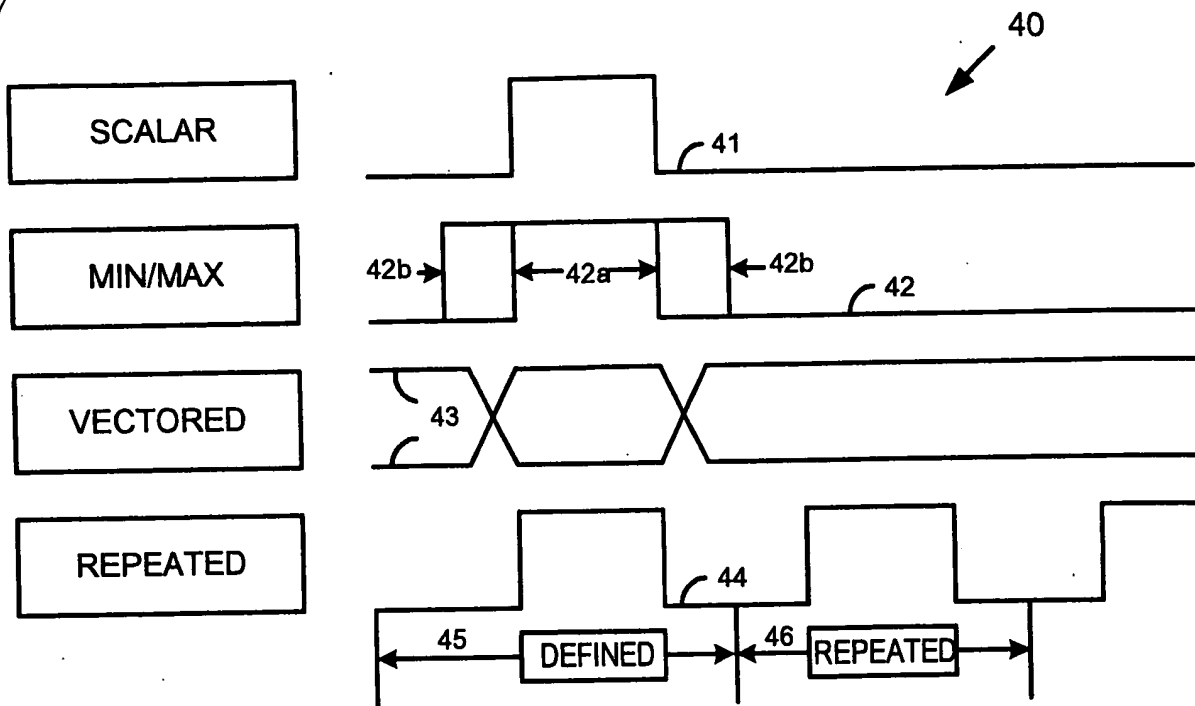


FIG. 4A

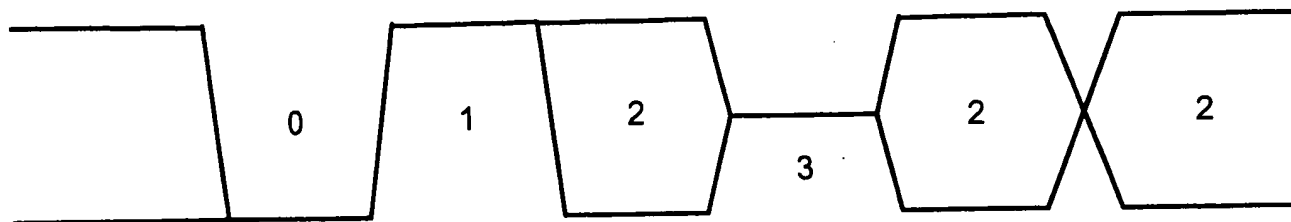


FIG. 4B



Create a new TChart definition

TimeChart  
Version 1.0 Jan 24, 2001 E.A. Rodi

Header

Drawing title  
TimeChart

Base time for plot to  
(+/-)  
0

Card Option

☐ Plot Borders

Page Size ☒ A ☐ B ☐ C ☐ D ☐ E

☒ Landscape

☒ Display Times

☒ Display Bottom Time

☒ Alternate Text

Plot Color ☒ Black ☐ Red ☐ Green ☐ Blue

☐ Violet ☐ Cyan

Cycles

Number of  
cycles to plot  
40

Time period  
of each cycle  
10

Number of first  
cycle (+/-)  
0

Optional Inputs

Title  
CYCLE

Time where  
timeline is broken

Time where  
timeline resumes

Time Markers

☐ Repeat markings

Number of  
repeated cycles

Time period of  
repeat cycle

time-M1

t-M2

t-M3

t-M4

t-M5

t-M6

t-M7

t-M8

New Worksheet

Clear Worksheet

Write to Excel

Cancel

-NewTimeChart GUI

50

Figure 5



**Add Clocks**

**Pre-clock options**    ☒ Time    ☐ Bottom    ☒ Alt    **Plot Color**    ☒ Black    ☐ Red    ☐ Green    ☐ Blue    ☐ Violet    ☐ Cyan

**Define Clocks using Phase commands**

Title	Initial Level	Phase Offset	Phase Width	Cycle Time

**Define clocks using Repeat command (Optional)**

Title	Initial Level	Cycle Time	Num Rots

**Post-clock options**    ☒ Time    ☒ Bottom    ☒ Alt    **Plot Color**    ☒ Black    ☐ Red    ☐ Green    ☐ Blue    ☐ Violet    ☐ Cyan

**Transition / Dotted**    **T1 / Comment**

<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	
<input checked="" type="radio"/> T <input type="radio"/> D	

**Write to Excel**    **Cancel**

**Figure 6**

-AddClocks GUI  
60



Add New Signals

Options

☒ Time

☒ Bottom

☒ Alt

Plot Color

☒ Black

☐ Red

☐ Green

☐ Blue

☐ Violet

☐ Cyan

Add Option

Signal Templates

Plotas: ☒ Scaler

☐ Min/Max

☐ Vector

☐ Repeat

☐ Dotted

☐ Glitch

Title

Initial Level

0

Cycle Time of Repeat

Number of Repeats

Number of Transitions

2

Glitch Type

1

Add Signal

Infos

☒ Comment

☐ Arrows

☐ Begin Arrow

☐ End Arrow

☐ Open Arrow

☐ Close Box

Object Number

Time T1

Time T2

Text

Add Info

Add End

Add Marker

At time

Exit

→ -AddNewSignals GUI  
Figure 7  
70





In re Application of Eugene A. Rodi et al.  
 File # RA 5425 – Customer #27516  
 Title: Efficient Timing Chart Creation and Manipulation  
 Filing date: December 20, 2001  
 Drawing 9 of 12

options	+I	-B							
H	Test Timing Plot Data		-10						
Cycle	10		10	2		10 ns	50	450	
options	-T								
Rpt	Clock (Phase 1-4)		0	10	0				
T	0				1				
T	1.25								
T	2.5				2				
T	3.75								
T	5				3				
T	6.25								
T	7.5				4				
T	8.75								
Options	+T								
Mark									
Label									
T	All in cut		0						
T	65 C1			75	C2				
T	85 CC11			95	CC22				
Label	T2 in cut		0						
T	35 C1			75	C2				
Label	NONE in cut		0						
T	35 C1			475	C2				
Label	T1 in cut		0						
T	65 C1			75	C2				
T	85			95					
T	111			470					
Label	First Signal		1						
T	10	Cmt 1 too long to fit this space		20	<'<Cmt 2'				
T	35	c2		44.5					
Glitch	55	txt		-					
T	66.6	last							

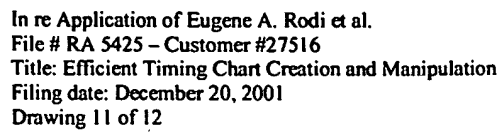
Figure 8A



In re Application of Eugene A. Rodi et al.  
 File # RA 5425 - Customer #27516  
 Title: Efficient Timing Chart Creation and Manipulation  
 Filing date: December 20, 2001  
 Drawing 10 of 12

T		475	Done						
Info	Show test #c cycles 30.2 to 66ns		Arrows		1	30.2	66.8		
Label	Second Signal Text Line			1					
T		25.5							
T		125	c1						
T		485				< c2			
Label	Second Signal 1 Text Line			1					
T		15.5							
T		25	c1						
T		35				c2			
T		45	source of drop						
T		450							
Info	Test of the highlight area		OpenBox		1	15.5	35		
Info	Drop Arrows		BeginArrow		1	55	475		
Info	This is another test of text.		Arrows		1	2	21		
Label	Second Signal 3 Text Line			1					
t		15.5							
t		25	c1						
t		35				c2			
Info			CloseBox		1				
Label	Second Signal 4 Text Line			1					
t		15.5							
Info	Highlight the active region.		OpenBox		9	5	457		
t		25	c1						
t		35				c2			
Info	Mark #T ns. third test of text		Arrows		1	80	488		
Label	Second Signal 5 Text Line			1					
T		15.5							

Figure 8B



T		25	c1				
T		35				c2	
T		460					
T		465					
Info	test of drop arrows		EndArrow	1			
Info	Mark normal info comment line.						
LV	Second Signal 7 Text Line			0			
TV		15.5	L0		0		
TV		20	L1		1		
TV		30	L2		2		
TV		40	L3		3		
TV		50	L2		2		
TV		460	L1		1		
TV		470	L0		0		
Label v	Second Second Signal 7 Text Line			3			
TV		10	L2		2		
TV		15			2		
TV		20	L3		3		
TV		25			3		
TV		30	L2		2		
TV		35			2		
TV		40	L1		1		
TV		45			1		
TV		50	L0		0		
TV		55			0		
TV		60	L1		1		
TV		465			1		
TV		470	L2		2		
TV		475			2		
Label	Skip line			1			
Glitch		1000					



Label	Second Signal 8 Text Line		1				
T	15.5						
T	25	c1					
T	35			c2			
Label	Second Signal 9 Text Line		1				
T	15.5						
T	25	c1					
T	35			c2			
Info	This text should not print!	CloseBox		9			
LV	Second Signal 7 Text Line		0				
TV	15.5	L0		0			
TV	20	L1		1			
TV	30	L2		2			
TV	40	L3		3			
TV	50	L2		2			
TV	460	L1		1			
TV	470	L0		0			
Label	Second Signal 7 Text Line		3				
TV	10	L2		2			
TV	15			2			
TV	20	L3		3			
TV	25			3			
TV	30	L2		2			
TV	35			2			
TV	40	L1		1			
TV	45			1			
TV	50	L0		0			
TV	55			0			
TV	60	L1		1			
TV	465			1			
TV	470	L2		2			
TV	475			2			
Info	Show text #c cycles 30.2 to 66 ns	Arrows		1	30.2	66.8	
END							

Figure 8D